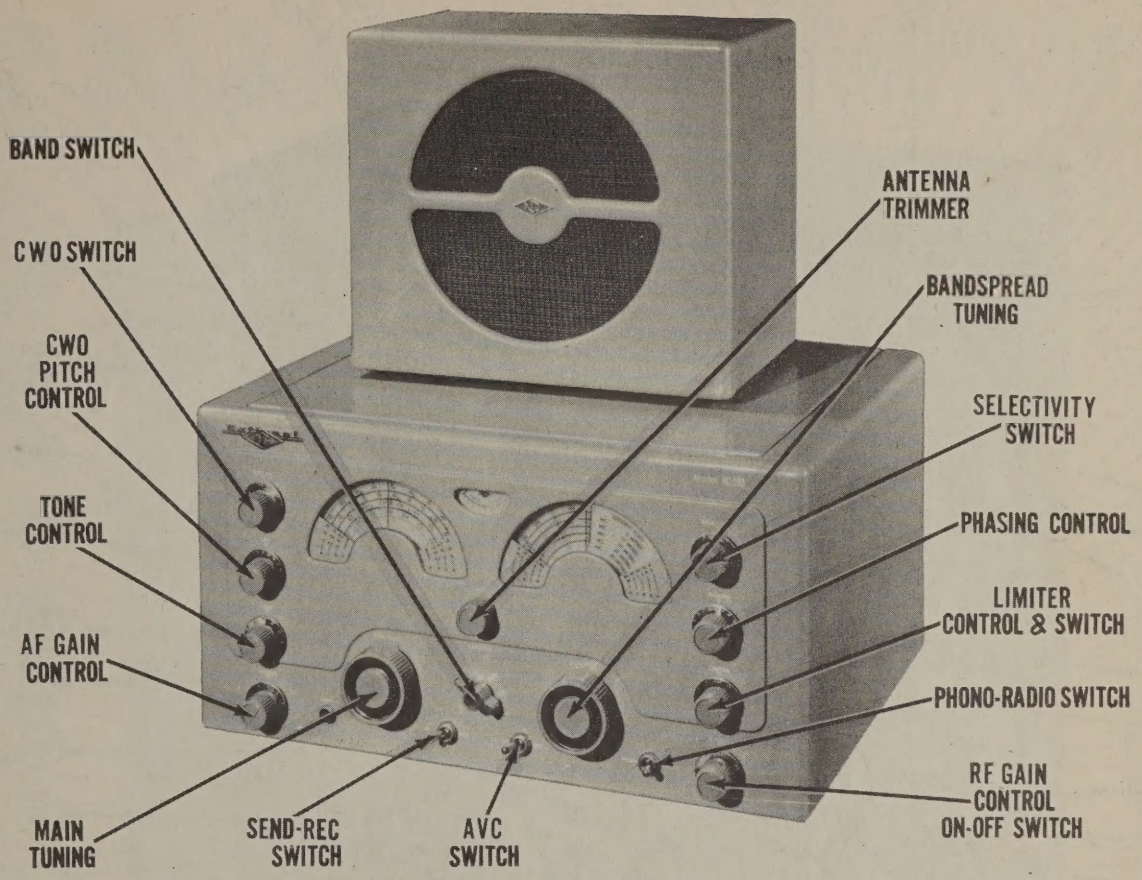
NATIONAL MODELS
NC-183R, NC-183T



NATIONAL MODEL NC-183R

TRADE NAME	National, Models NC-183R, NC-183T
MANUFACTURER	National Co., Inc., 61 Sherman St., Malden, Mass.
TYPE SET	AC or Battery Operated Commercial Type Multi-Band Superheterodyne Receiver
TUBES (SIXTEEN)	Types, 6SG7 1st RF Amp., 6SG7 2nd RF Amp., 6SA7 Mixer, 6J5 Oscillator, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6AC7 AVC Amp., 6SJ7 CW Osc., 6H6 2nd Det.-AVC, 6H6 Limiter, 6SJ7 1st AF Amp., 6J5 Phase Inv., (2) 6V6GT Power Output, 0D3/VR150 Voltage Regulator, 5U4G Rectifier.
POWER SUPPLY	110-120 or 220-240 Volts AC or Batteries (6 Volt Storage Battery and 135-250 Volt "B" Battery)
TUNING RANGE-BROADCAST .54-1.6MC	SHORT WAVE Band "A" 48-56MC, Band "B" 12-31MC, Band "C" 4.3-12MC, Band "D" 1.6-4.3MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 7, Indiana

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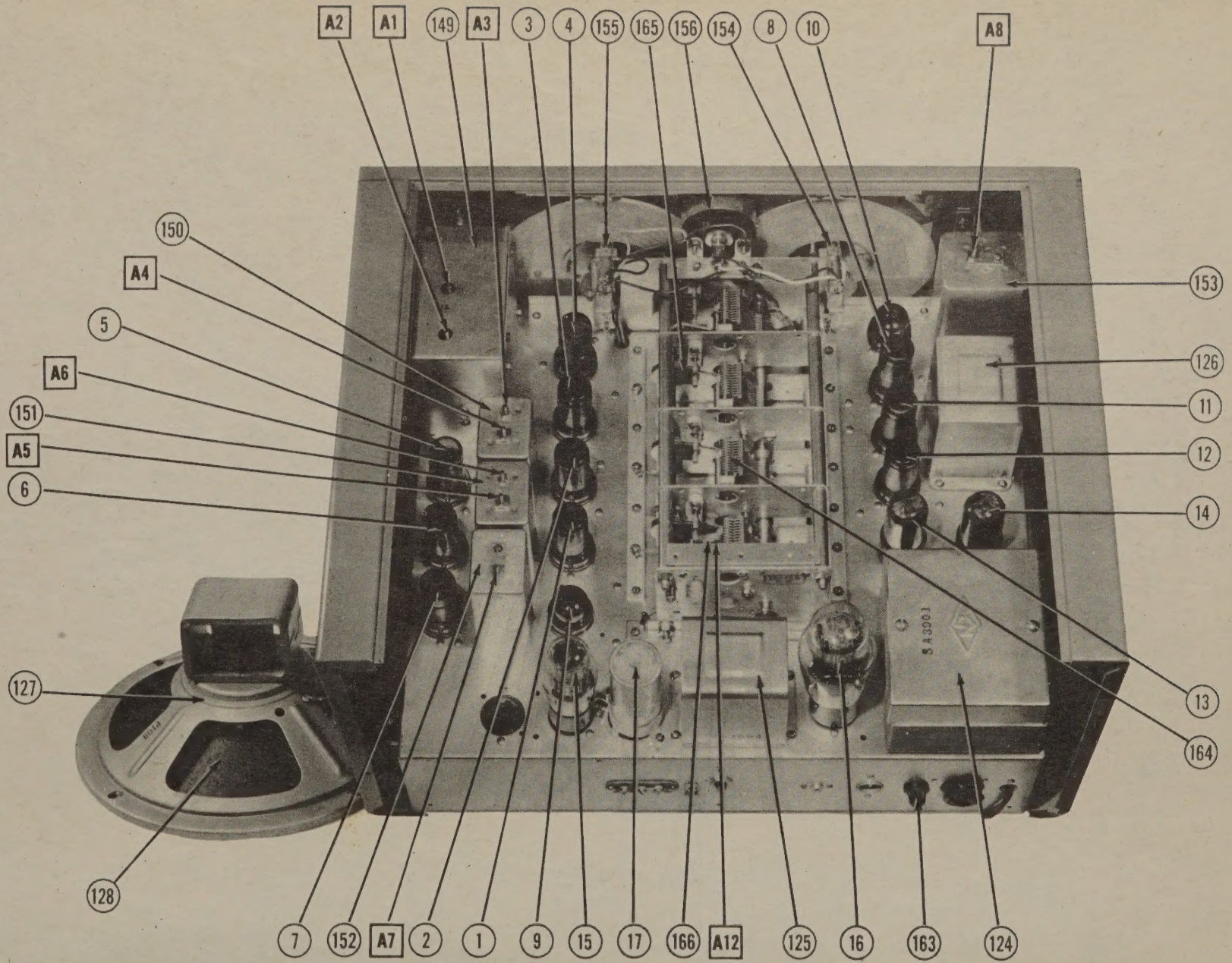
DATE 11/48-#4819-15 SET #49-FOLDER #15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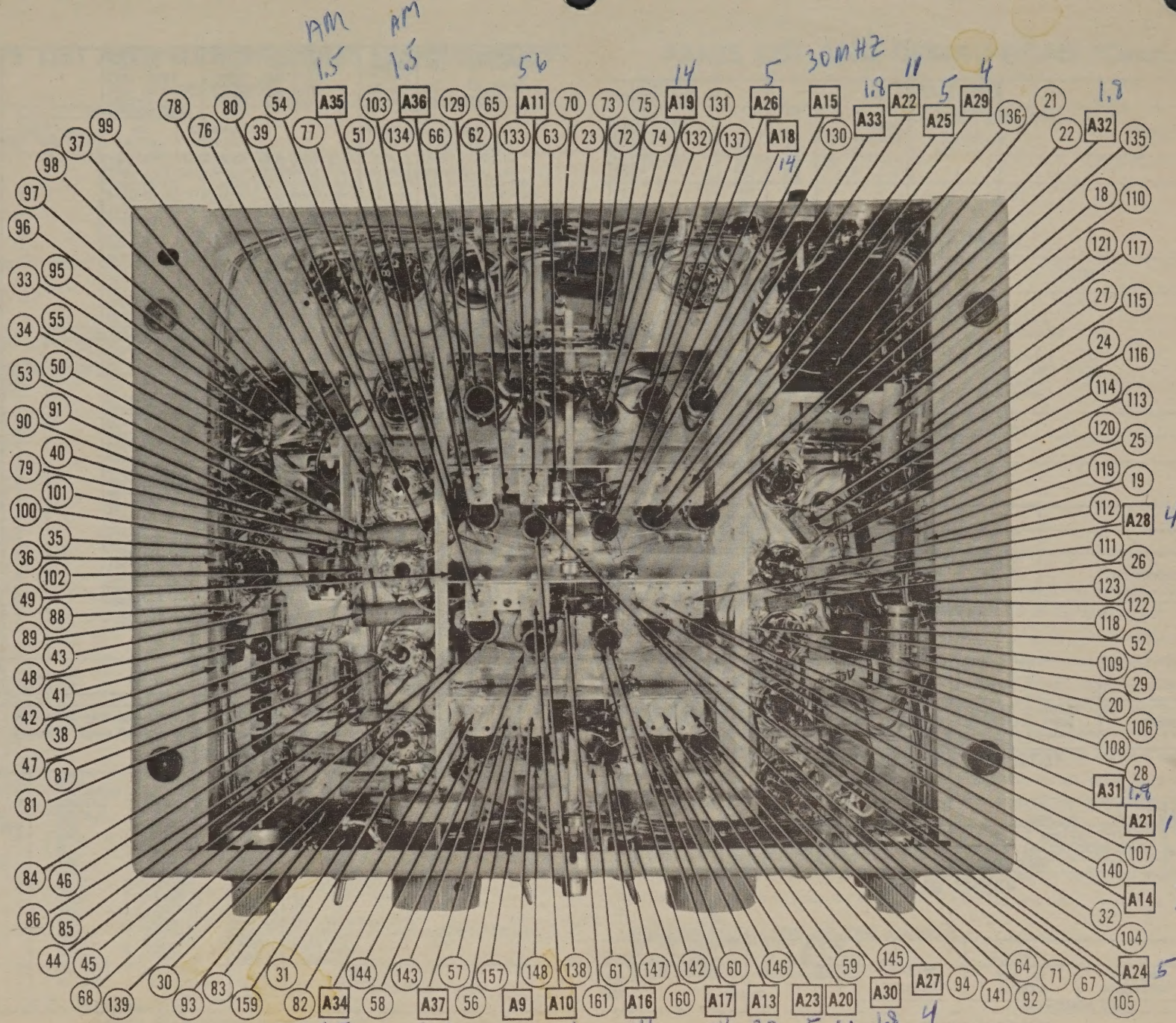


NATIONAL MODELS
NC-183R, NC-183T PAGE 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st RF Amp.		6SG7	6SG7	8BK
2	2nd RF Amp.		6SG7	6SG7	8BK
3	Mixer		6SA7	6SA7	8R
4	Osc.		6J5	6J5	6Q
5	1st IF Amp.		6SG7	6SG7	8BK
6	2nd IF Amp.		6SG7	6SG7	8BK
7	AVC Amp.		6AC7	6AC7	8N
8	C.W. Osc.		6SJ7	6SJ7	8N
9	2nd Det. AVC		6H6	6H6	7Q
10	Limiter		6H6	6H6	7Q
11	1st Audio		6SJ7	6SJ7	8N
12	Phase Inverter		6J5	6J5	6Q
13	Power Output		6V6GT/G	6V6GT/G	7AC
14	" "		6V6GT/G	6V6GT/G	7AC
15	Voltage Reg.		OD3/VR150	OD3/VR150	4AJ
16	Rectifier		5U4G	5U4G	5T

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
17A	10	475			KR588AX	DH-2x8-450SS		Filter
B	10	475			"			"
18	25	50		PRS50/25	BR255	M-25-50	TA-525	Cathode Bypass
19	25	50		PRS50/25	BR255	M-25-50	TA-525	Bias Filter
20	10	50		PRS50/10	BR105	M-10-50	TA-510	Cathode Bypass
21	.01	600		684-01	DT6S1	ST-6-01	TC-11	Line Filter
22	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
23	.1	400		484-.1	DT4P1	ST-4-1	TC-1	RF Bypass
24	.01	600		684-01	DT6S1	ST-6-01	TC-11	Audio Coupling
25	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
26	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
27	.1	400		484-.1	DT4P1	ST-4-1	TC-1	AF Plate Decoupling
28	.25	400		484-.25	DT4P25	ST-4-25	TC-2	AF Screen Bypass
29	.005	500		684-005	DT6D5	ST-6-005	TC-25	Tone Comp.
30	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Audio Coupling
31	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Limiter Bypass
32	.1	400		484-.1	DT4P1	ST-4-1	TC-1	B.F.O. Screen Byp.
33	.01	600		684-01	DT6S1	ST-6-01	TC-11	AVC Amp. Screen Byp.
34	.05	600		684-05	DT6S5	ST-6-05	TC-15	AVC Amp. Decoup.
35	.01	600		684-01	DT6S1	ST-6-01	TC-11	2nd IF Screen Byp.
36	.05	600		684-05	DT6S5	ST-6-05	TC-15	2nd IF Decoupling
37	.01	600		684-01	DT6S1	ST-6-01	TC-11	S Meter Bypass
38	.1	400		484-.1	DT4P1	ST-4-1	TC-1	AVC Filter
39	.1	400		484-.1	DT4P1	ST-4-1	TC-1	" "
40	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
41	.01	600		684-01	DT6S1	ST-6-01	TC-11	1st IF Screen Byp.
42	.05	600		684-05	DT6S5	ST-6-05	TC-15	1st IF Decoupling
43	.01	600		684-01	DT6S1	ST-6-01	TC-11	AVC Filter
44	.05	600		684-05	DT6S5	ST-6-05	TC-15	Mixer Plate Decoup.
45	.01	600		684-01	DT6S1	ST-6-01	TC-11	Mixer Screen Byp.
46	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Mixer Cathode Bypass
47	.1	400		484-.1	DT4P1	ST-4-1	TC-1	RF Bypass Power Supply
48	.05	600		684-05	DT6S5	ST-6-05	TC-15	2nd RF Plate Decoupling
49	.01	600		684-01	DT6S1	ST-6-01	TC-11	2nd RF Screen Bypass
50	.05	600		684-05	DT6S5	ST-6-05	TC-15	1st RF Plate Decoup.
51	.01	600		684-01	DT6S1	ST-6-01	TC-11	1st RF Screen Byp.
52	1000	500		1467-001	1W5D1	MW.5-21	1FM-21	Output Plate Bypass
53	270	500		1468-00025	5W5T25	MO.5-325	1FM-325	Diode RF Filter
54	47	300		1468-00005	5W5Q5	MO.5-45	1FM-45	BFO Coupling-Cer.
55	47	300		1468-00005	5W5Q5	MO.5-45	1FM-45	IF Coupling-Cer.
56	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.-Cer.
57	1000	300		1467-001	1W5D1	MW.5-21	1FM-21	Osc. Coupling
58	420	500						Fixed Padder
59	1250	500						" "
60	4200	500						" "
61	8500	500						" "
62	1000	300		1467-001	1W5D1	MW.5-21	1FM-21	RF Coupling
63	5	300		1468-000005	5W5V5	MO.5-55	MS-55	RF Coupling-Cer.
64	10	300		1468-00001	5W5Q1	MO.5-41	1FM-41	" " "
65	1000	300		1467-001	1W5D1	MW.5-21	1FM-21	RF Coupling-Cer.
66	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	Antenna Coupling-Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
124	117V AC @ .95A	660V CT .125A DC	5.0V AC @ 3.0A	6.6V AC @ 4.9A	SA3901	P-5059†		

†Drill new mounting holes and mount vertically.

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000)	REPLACEMENT DATA: NATIONAL PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
125	.125A	293Ω	15 Henries	SA1694		T20054#	C-3187#	#Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
126	10KΩ CT	500Ω tapped @ 6.9Ω	515Ω CT	88Ω tapped @ 1.5Ω	SA3901				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-120		
127	PM	6.9Ω		Mod. P10-S	10A6	
	CONE DIA.	VC DIA.				
128	9-3/4"	1"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: MEISSNER PART No.
	Band				
129	Ant. Coil E	3Ω	0Ω		
130	" " D	1.3Ω	0Ω		
131	" " C	.1Ω	0Ω		
132	" " B	0Ω	0Ω		
133	" " A	0Ω	0Ω		
134	1st RF E	1Ω	5Ω		
135	" " D	1Ω	.8Ω		
136	" " C	7Ω	.1Ω		
138	" " B		0Ω		
138	" " A	.1Ω	0Ω		
139	2nd RF E	.8Ω	5Ω		
140	" " D	.7Ω	.8Ω		
141	" " C	.6Ω	0Ω		
142	" " B	0Ω	0Ω		
143	" " A	0Ω	0Ω		
144	Osc.Coil E	1Ω	2.5Ω		
145	" " D	1Ω	.4Ω		
146	" " C	.2Ω	0Ω		
147	" " B	0Ω	0Ω		
148	" " A	0Ω	0Ω		
149	1st IF	2Ω			
150	2nd IF	2Ω	2Ω		
151	3rd IF	2Ω	2Ω		
152	AVC Amp. Coil		2Ω		
153	B.F. Osc. Coil				

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	
67A	500KΩ	½		D13-133	M-60-Z	AF Gain Control
B	Shaft			A	Not Req.	Attach to 67A per instructions
68	10KΩ	1				RF Gain Control
69A	100KΩ	½		D11-128	M-49-S	Limiter Control
B	Shaft			A	Not Req.	Attach to 69A per instructions
C	Switch			43	SW-A1	" " " " "
70	2 Meg.	½			M-83-S	"S" Meter Control
71A	500KΩ	½		D13-133	M-60-Z	Tone Control
B	Shaft			A	Not Req.	Attach to 71A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	NATIONAL PART No.	IRC PART No.	
72	330Ω	½		BW-½-330	Or.-Or.-Br. Bias Network
73	680Ω	½		BW-½-680	Blue-Gray-Br. " "
74	270Ω	1		BW-1-270	Red-Vi.-Br. " " -See Note
75	220KΩ	½		BTS-220K	Red-Red-Yl. Series "S" Meter
76	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st RF Grid
77	33KΩ	½		BTS-33K	Or.-Or.-Or. 1st RF Screen
78	2000Ω	½		BTS-2200	Red-Blk.-Red 1st RF Decoup.
79	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd RF Grid
80	33KΩ	½		BTS-33K	Or.-Or.-Or. 2nd RF Screen
81	2200Ω	½		BTS-2200	Red-Red-Red 2nd RF Plate Decoup.
82	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
83	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Plate
84	220Ω	½			Red-Red-Br. Mixer Cathode
85	33KΩ	½		BTS-33K	Or.-Or.-Or. Mixer Screen
86	2200Ω	½		BTS-2200	Red-Red-Red Mixer Plate Decoup.
87	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
88	33KΩ	½		BTS-33K	Or.-Or.-Or. 1st IF Screen
89	2200Ω	½		BTS-2200	Red-Red-Red 1st IF Decoupling
90	33KΩ	½		BTS-33K	Or.-Or.-Or. 2nd IF Screen
91	2200Ω	½		BTS-2200	Red-Red-Red 2nd IF Decoupling
92	68KΩ	½		BTS-68K	Blue-Gray-Or. Diode Load
93	270KΩ	½		BTS-270K	Red-Vi.-Yl. Limiter Bias Network
94	270KΩ	½		BTS-270K	Red-Vi.-Yl. Limiter Load
95	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Amp. Grid
96	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Amp. Screen
97	2200Ω	½		BTS-2200	Red-Red-Red AVC Amp. Decoup.
98	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Series "S" Meter
99	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
100	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " "
101	270KΩ	½		BTS-270K	Red-Vi.-Yl. " "
102	220KΩ	½		BTS-220K	Red-Red-Yl. " "
103	220KΩ	½		BTS-220K	Red-Red-Yl. BFO Plate
104	100KΩ	½		BTS-100K	Br.-Blk.-Yl. BFO Screen Dropping
105	100KΩ	½		BTS-100K	Br.-Blk.-Yl. BFO Screen Bleeder
106	2200Ω	½		BTS-2200	Red-Red-Red AF Cathode
107	1 Meg	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Screen Dropping
108	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Screen Bleeder
109	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Load
110	47KΩ	½		BTS-47K	Yl.-Vi.-Or. AF Plate Decoup.
111	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Phase Inv. Grid
112	4700Ω	½		BTS-4700	Yl.-Vi.-Red Phase Inv. Cathode
113	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inv. Cathode
114	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inv. Plate Load
115	270KΩ	½		BTS-270K	Red-Vi.-Yl. Output Grid
116	270KΩ	½		BTS-270K	Red-Vi.-Yl. " "
117	33Ω	2		BW-2-330	Or.-Or.-Br. Output Cathode
118	47Ω	2		BT-2-470	Yl.-Vi.-Br. Output Transformer Sec. Loading
119	1000Ω	1		BTA-1000	Br.-Blk.-Red Bias
120	1000Ω	1		BTS-1000	Br.-Blk.-Red " Voltage Dropping
121	5000Ω	10		AB-5000	
122	100Ω	½		BW-½-100	Br.-Blk.-Br. Feedback
123	4700Ω	½		BTS-4700	Yl.-Vi.-Red "

Note-Some models may use a 470Ω ½ W. resistor in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

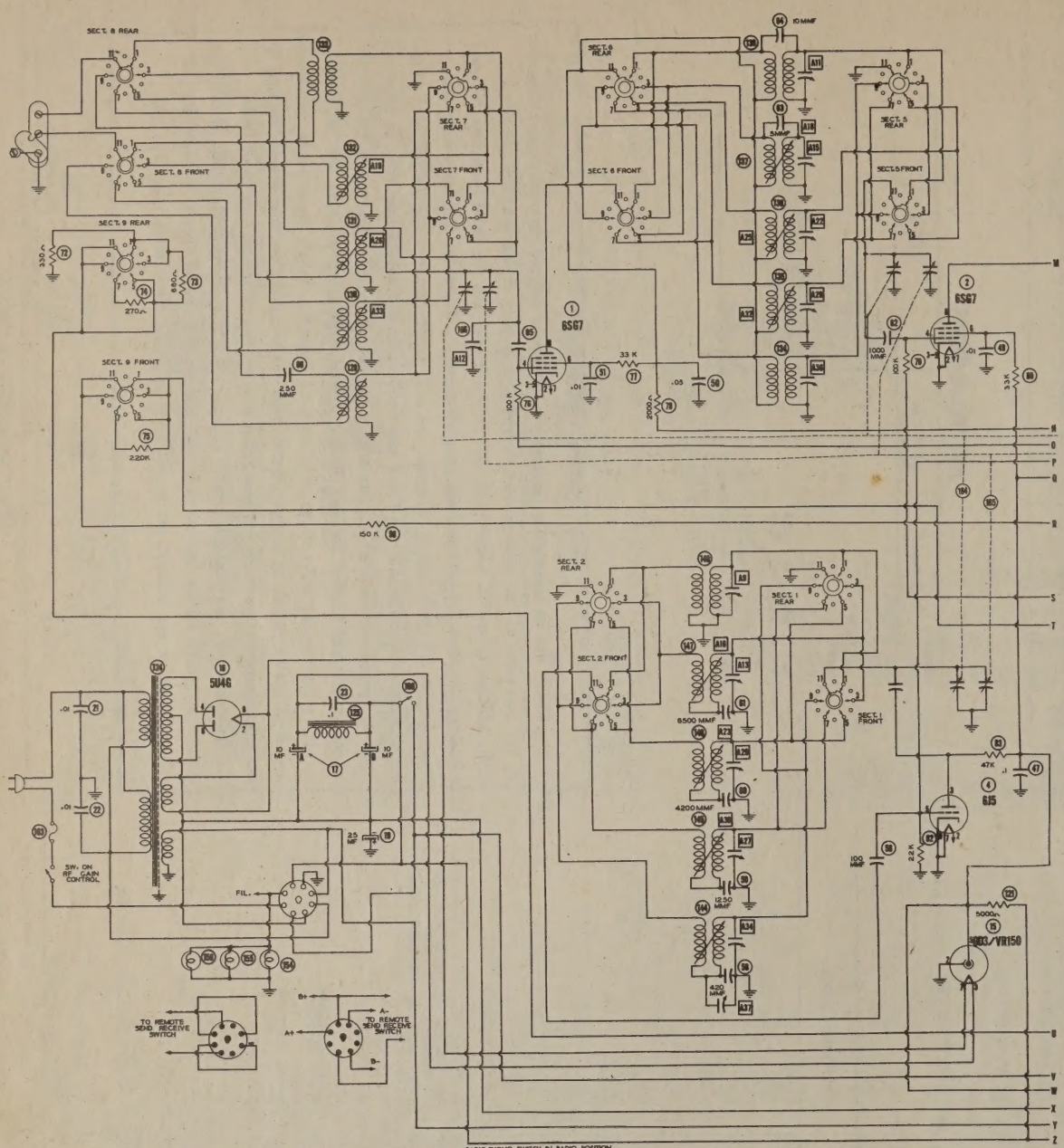
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					NATIONAL PART No.		
154 156	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
157	Switch		AVC
158	"		CW Osc.
159	"		Radio-Phono
160	"		Send-Receive
161	"		Band
162	"		Selectivity
163	Fuse		2 Amp., 250 Volts
164	4 Gang Var. Cap.		(16-358MMF) each section
165	4 Gang Var. Cap.		Bandspread
166	Trimmer Cap.		A12
167	Crystal Resonator		(455KC)

BATTERY OPERATION

The NC-183 may be operated in portable or emergency service by connecting batteries to the terminals of the power socket located at the rear of the Receiver. An octal plug, similar to the AC jumper plug, may be wired and used for interconnection between batteries and Receiver. The battery plug used must be wired in accordance with the drawing shown on the schematic diagram. A 6 volt heater supply (storage battery) should be connected to terminals 3 and 5 and 135 to 250 volt "B" supply connected to terminals 4 and 8. The recommended "B" voltage supply for battery economy is between 135 and 180 volts. At voltages between 135 and 150 the voltage regulator tube will not ignite affecting a further battery economy. For stand-by operation in all cases it is recommended that a switch be placed in the battery B+ lead for increased battery economy as the "B" switch on the Receiver does not open the B supply circuit to the H.F. oscillator, voltage regulator, and push-pull audio output tubes. A suggested refinement is to include a switch in the A+ lead so that the tube heaters may be turned off when the Receiver is not in use without the necessity of removing the battery plug from the battery socket.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	0V.	-2VDC	0V.	170VDC	6.6VAC	250VDC
2	6SG7	0V.	0V.	0V.	-1.5VDC	0V.	108VDC	6.6VAC	250VDC
3	6SA7	0V.	6.6VAC	260VDC	50VDC	-15VDC‡	0VDC	0V.	0V.
4	6J5	0V.	6.6VAC	80VDC	0V.	-15VDC‡	14VDC	0V.	0V.
5	6SG7	0V.	0V.	0V.	-.6VDC	0V.	175VDC	6.6VAC	250VDC
6	6SG7	0V.	0V.	0V.	0V.	0V.	165VDC	6.6VAC	250VDC
7	6AC7	0V.	0V.	0V.	-1VDC	0V.	160VDC	6.6VAC	240VDC
* 8	6SA7	0V.	0V.	0V.	-2.6VDC‡	0V.	125VDC	6.6VAC	235VDC
9	6H6	0V.	0V.	-.4VDC	0V.	-2.4VDC	20VDC	6.6VAC	0V.
* 10	6H6	0V.	0V.	-.2VDC	.2VDC	-.2VDC	0V.	6.6VAC	.2VDC
11	6SJ7	0V.	0V.	0V.	0V.	1.5VDC	32VDC	6.6VAC	60VDC
12	6J5	0V.	0V.	110VDC	15VDC	1VDC	0V.	6.6VAC	80VDC
13	6Y6GT	0V.	0V.	260VDC	265VDC	-21.5VDC	0V.	6.6VAC	-7.6VDC
14	6Y6GT	0V.	0V.	260VDC	265VDC	-21.5VDC	0V.	6.6VAC	-7.6VDC
15	VR150/000	0V.	0V.	320VDC	0V.	150VDC	0V.	320VDC	0V.
16	5U4G	0V.	210VDC	0V.	330VAC	0V.	330VAC	0V.	310VDC

SELECTIVITY CONTROL IN OFF POSITION.
TAKEN WITH VACUUM TUBE VOLTMETER.

RADIO-PHONO SWITCH IN RADIO POSITION.
VOLTAGE AND RESISTANCE TAKEN IN BAND E.

*LIMITER SWITCH IN ON POSITION.
40MD SWITCH IN ON POSITION.
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	0Ω	300KΩ	0Ω	140KΩ	.1Ω	100KΩ
2	6SG7	0Ω	0Ω	0Ω	480KΩ	0Ω	140KΩ	.1Ω	100KΩ
3	6SA7	0Ω	.1Ω	100KΩ	140KΩ	22KΩ	220Ω	0Ω	0Ω
4	6J5	0Ω	.1Ω	150KΩ	INF.	22KΩ	80KΩ	0Ω	0Ω
5	6SG7	0Ω	0Ω	0Ω	1.4 Meg.	0Ω	140KΩ	.1Ω	100KΩ
6	6SG7	0Ω	0Ω	0Ω	340KΩ	0Ω	140KΩ	.1Ω	100KΩ
7	6AC7	0Ω	0Ω	0Ω	480KΩ	0Ω	200KΩ	.1Ω	100KΩ
* 8	6SA7	0Ω	0Ω	0Ω	50KΩ	1Ω	100KΩ	.1Ω	140KΩ
9	6H6	0Ω	0Ω	170KΩ	0Ω	30KΩ	140KΩ	.1Ω	0Ω
* 10	6H6	0Ω	0Ω	60KΩ	650KΩ	500KΩ	INF.	.1Ω	650KΩ
11	6SJ7	0Ω	0Ω	0Ω	500KΩ	2.2KΩ	330KΩ	.1Ω	250KΩ
12	6J5	0Ω	0Ω	150KΩ	47KΩ	500KΩ	INF.	.1Ω	52KΩ
13	6Y6GT	0Ω	0Ω	100KΩ	100KΩ	270KΩ	INF.	.1Ω	65Ω
14	6Y6GT	0Ω	0Ω	100KΩ	100KΩ	270KΩ	INF.	.1Ω	65Ω
15	VR150/000	0Ω	0Ω	100KΩ	INF.	100KΩ	INF.	100KΩ	INF.
16	5U4G	INF.	100KΩ	INF.	500Ω	INF.	500Ω	INF.	100KΩ

SEND-RECEIVE SWITCH IN RECEIVE POSITION.
AVC MVC SWITCH IN AVC POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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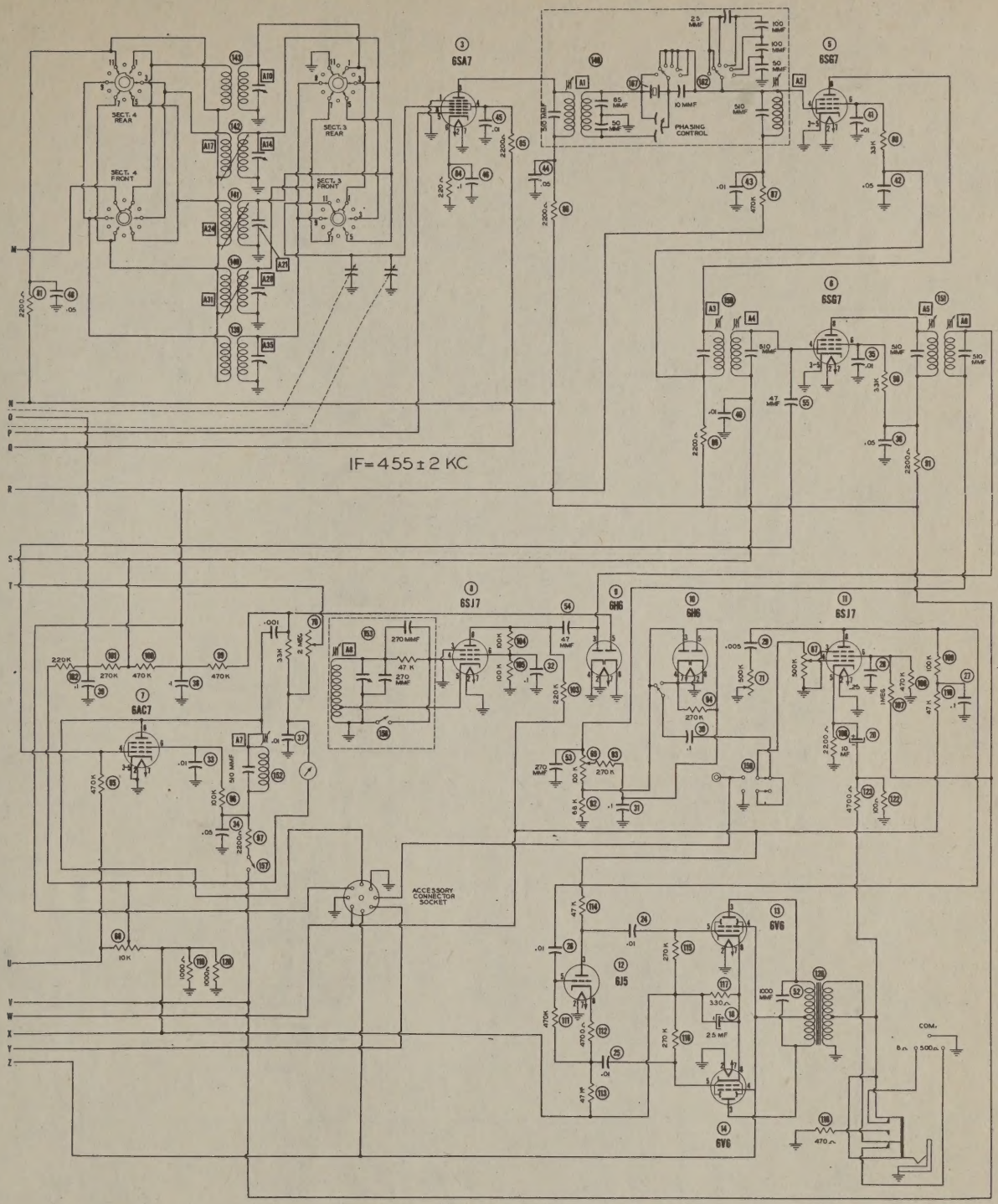

STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	1X		600KC	INTER IF TRANS.	1X		455KC
1st RF to 2nd RF GRID	2X		600KC	2nd IF TUBE	90X		455KC
RF GRID TO CONV. GRID	2X		600KC	OUTPUT IF TRANS.	1X		455KC
CONVERSION GAIN	10X	IN	600KC	AVC AMP.	2X		455KC
		OUT	455KC	AUDIO	25X		400 ∿
INPUT IF TRANS.	.4X		455KC	PHASE INVERTER	.6X		400 ∿
1st IF TUBE	100X		455KC	OUTPUT	25X		400 ∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Controls should be set as follows: Bandspread dial at "Set" mark, CWO Switch at Off, CWO Control at Zero, Tone Control at 10, AF Gain at 10, Send-Rec. Switch at Rec., AVC Switch at MVC, Phono-Radio Switch at Radio, RF Gain at 10, Limiter at Off, Phasing Control at Zero, and Selectivity Switch at Off, except where noted otherwise. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Tracking of coils may be checked by use of tuning wand. Correct tracking of coil is indicated when insertion of either end of tuning wand causes an equal decrease in output. If insertion of either end of wand causes an increase in output, correct tracking may be accomplished by adjustment of loops of wire (inside coil forms) designated by "A" Nos. in Steps 9,10,13,14,17 & 18.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	Direct	High side to stator of 2nd section from front of tuning cap. Low side to chassis.	455KC (approx. unmodulated)	Band "E"	Tuning cap. fully open.	Across voice coil	Sig. Gen.	Set "CWO" switch to "ON". Set selectivity control to "5". "CWO" control set to provide audible note. Tune sig. gen. for maximum output.
2	Direct	"	Do not change (turn modulation on)	"	"	"	A1,A2, A3,A4, A5,A6	Set "CWO" switch to "OFF". Set selectivity control to "Off". Adjust A1 thru A6 for maximum output.
3	Direct	"	"	"	"	"	A7	Set AVC/MVC switch to AVC. Adjust A7 for minimum output.
4	Direct	"	Do not change (turn modulation off)	"	"	"	A8	Return AVC/MVC switch to MVC. Set "CWO" switch at "ON". Set "CWO" control at zero. Adjust A8 for zero beat. Return "CWO" switch to "OFF".
5	400Ω carbon resistor	High side to ant. terminal "A". Low side to other ant. terminal with link connected.	56.0MC	Band "A"	Main dial at ⑥. Bandspread dial at 56MC	"	A9	Adjust for maximum output. Tune sig. gen. to 56.9MC. If signal is not heard, retune sig. gen. to 56MC and open A9 to next peak. Adjust for maximum output and recheck for image.
6	"	"	"	"	Tune for maximum output.	"	A10, A11, A12	Rock tuning cap. and adjust for maximum output. Set bandspread dial to "SET" mark.
7	"	"	30MC	Band "B"	30MC	"	A13	Adjust for maximum output. Tune sig. gen. to 30.9MC. If signal is not heard, retune sig. gen. to 30MC and open A13 to next peak. Adjust for maximum output and recheck for image.
8	"	"	"	"	Tune for maximum output.	"	A14, A15, A12	Rock tuning cap. and adjust A14 & A15 for maximum output. Check tracking of 1st RF stage by rotating A12 for one complete revolution. Two peaks should be obtained. Either one is correct for maximum output.
9	"	"	14.0MC	"	14MC	"	A16	Adjust for maximum output.
10	"	"	"	"	"	"	A17. A18 A19	Check tracking of coils associated with these adjustments per prealignment instructions. Repeat Steps 7 thru 10 until no further improvement can be made.
11	"	"	11.0MC	Band "C"	11MC	"	A20	Adjust for maximum output. Tune sig. gen. to 11.9MC. If signal is not heard, retune sig. gen. to 11.0 MC and open A20 to next peak. Adjust for maximum output and recheck for image.
12	"	"	"	"	Tune for maximum output.	"	A21, A22, A12	Rock tuning cap. and adjust A21 & A22 for maximum output. Check tracking of 1st RF stage by rotating A12 one complete revolution. Two peaks should be obtained. Either one is correct for maximum output.
13	"	"	5.0MC	"	5MC	"	A23	Adjust for maximum output.
14	"	"	"	"	"	"	A24, A25, A26	Check tracking of coils associated with these adjustments per prealignment instructions. Repeat Steps 11 thru 14 until no further improvement can be made.
15	"	"	4.0MC	Band "D"	4MC	"	A27	Adjust for maximum output. Tune sig. gen. to 4.9MC. If signal is not heard, retune sig. gen. to 4.0 MC and open A27 to next peak. Adjust for maximum output and recheck for image.
16	"	"	"	"	Tune for maximum output.	"	A28, A29, A12	Rock tuning cap. and adjust A28 & A29 for maximum output. Check tracking of 1st RF Stage by rotating A12 one complete revolution. Two peaks should be obtained. Either one is correct for maximum output.
17	"	"	1.8MC	"	1.8MC	"	A30	Adjust for maximum output.
18	"	"	"	"	"	"	A31, A32 A33	Check tracking of coils associated with these adjustments per prealignment instructions. Repeat Steps 15 thru 18 until no further improvement can be made.
19	200MMFD	"	1.5MC	Band "E"	1.5MC	"	A34	Adjust for maximum output. Tune sig. gen. to 2.4MC. If signal is not heard, retune sig. gen. 1.5MC and open A34 to next peak. Adjust for maximum output and recheck for image.
20	200MMFD	"	"	"	Tune for maximum output.	"	A35 A36 A12	Rock tuning cap. and adjust for maximum output.
21	200MMFD	"	.6MC	"	.8MC	"	A37	Adjust for maximum output. Repeat Steps 19, 20 & 21 until no further improvement can be made.